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Aqueous medium toxicity assessment by Daphnia magna swimming activity change

Nikitin O.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2014 AENSI Publisher All rights reserved. This paper presents toxicity evaluation data for the water containing various substances of known concentrations of various substances by Daphnia magna swimming activity change. The toxicity of the following substances was evaluated: potassium dichromate, zinc sulphate, pesticide esfenvalerate and cyanobacterial toxin of microcystin-LR. The swimming activity was determined using a computer vision system under normal conditions and after the toxicant introduction. It has been shown that at exposure time of 30 minutes, the median swimming speed of Daphnia changes. This fact may be used for the rapid assessment of aquatic toxicity, as well as for the development of the biological early warning systems for the contamination presence.

Keywords

Computer vision, Daphnia magna, Swimming activity, Toxicity assessment